

Section 9400 - Oil Spill History

Oil Spills are classified by the amount of oil discharged.

Major/Worst Case Discharges

A major discharge is defined as a spill greater-than 100,000 gallons of oil in the coastal zone or, a spill greater-than 10,000 gallons in the inland zone.

Historical Spill Consideration

The last major discharge occurred in May 1987 when Jet A fuel leaked from a pipeline into Pearl Harbor. Prior to that, there have been no historical catastrophic discharges in the COTP Hawaii Zone since the Japanese attack on Pearl Harbor December 7th, 1941.

Hazard Assessment

Although a pipeline failure is possible, the "Worst case potential discharge" will probably be from a vessel. A survey of the two refineries on Oahu, Chevron U.S.A. Inc. and Tesoro Hawaii Corporation, (formerly BHP), shows that the largest vessel that could be received at either offshore moorings is a 1,000 foot, 150,000 DWT tanker, with a cargo carrying capacity of approximately 1,000,000 barrels (or 42,000,000 gallons).

Medium/Maximum Most Probable Discharges

A medium discharge is defined as a spill greater-than 10,000 but less-than 100,000 gallons of oil in the coastal zone or, a spill greater-than 1,000 but less than 10,000 gallons in the inland zone.

Historical Spill Considerations

There have been 13 discharges of larger than 10,000 gallons over the past 15 years (1982-1997). These include the T/B Hana Discharge ('87), Exxon Houston Grounding ('89), T/V Star Connecticut Grounding ('90), T/V Yupex ('91), Chevron Pipeline Spill ('96), and the AGI Pipeline Spill ('97). All the discharges have varying circumstances, causes, and results. The general causes can be linked to mechanical failures (most human error or weather related) which resulted in the discharge of a large quantity of refined product.

The following are narratives describing four of the largest or most complex responses undertaken in this Captain of the Port zone.

Chevron Pipeline ('87)

On the 13th of May 1987, approximately 104,496 gallons of JET-A was discharged from a seven-inch crack in an eight-inch pipeline. The product was discharged into a small stream that empties into Middle Loch of Pearl Harbor. The discharge also affected a nearby wildlife refuge resulting in the death of one Hawaiian Stilt, one Hawaiian Duck (both endangered species) and approximately 1,000 Mosquito Fish. An additional Hawaiian Duck was affected but did survive after being rescued by cleanup personnel then turned over to a ranger. The oil entered the refuge through a surface-skimming intake that provided water to the refuge. The responsible party (Chevron) contracted with Clean Islands Council (CIC) to perform the necessary cleanup. CIC also utilized Pacific Environmental Company (PENCO) and equipment from the U.S. Navy. The response efforts were first concentrated in the wild life refuge and the creek area. CIC, Pacific Environmental Company (PENCO) and the U.S. Navy deployed containment equipment and performed recovery using sorbents and vacuum truck skimmers. Several days into the response, the heaviest concentration of JET-A was located along the west bank of the Middle Loch. Here wash pumps were also used to hold the product against the shore where it was accessible to the recovery effort. Later into the response CIC brought in two OIL MOP machines that performed exceptionally well. The recovered product was first placed into pits and then transferred to the Chevron Refinery where it was recycled or disposed of. Once all the JET-A was recovered from the water and pits, CIC requested to terminate cleanup operations, to which the OSC approved. One of the problems that hampered the response was that, due to the concentration of the JET- A, it did not emit a sheen, which made it difficult to find the major concentration from the air. A major cause of the successful mitigation, was the quick response of the U.S. Navy in providing and deploying equipment to the scene.

T/B Hana ('87)

On 20 January 1987 the HANA was loaded with 1,344,000 gallons of Bunker C and accidentally discharged an estimated 42,000 gallons while being towed overnight to Kahalui, Maui. The cause of the discharge was the failure of the #4 port and starboard ullage openings. Openings were damaged when wooden timbers carried on the barge's deck broke free during transit and struck dogging wheels on the ullage covers. Opened covers allowed sea water to enter the tanks and displace the cargo of Bunker C. Additional cargo was discharged as the barge surged through heavy seas, frequently immersing itself. The discharge resulted in an oil slick consisting of heavy rainbow sheen approximately 12-25 miles long and 100-200 yards wide. The responsible party, Sausse Bros., immediately assumed responsibility for the spill. As a member of the

local oil spill cooperative, Clean Islands Council (CIC), they had immediate access to oil containment and cleanup equipment. Sausse Bros. contracted Pacific Environmental Company (PENCO) to provide supervisors and laborers to use CIC equipment and clean up the spill. Personnel from MSO Honolulu provided on-site monitoring of cleanup activities and were augmented by Pacific Strike Team personnel. Clean up efforts involved an average of 50 laborers daily (90 laborers at peak) and took 5 weeks to complete. During this period a number of problems were encountered. Tracking the movement of the spill was difficult because portions of the oil had a specific gravity (1.07) denser than that of normal seawater around Oahu (1.024). Consequently, much of the oil sank below the surface of the water and could not be seen by aircraft since it blended in with benthic algae and dark lava rock on the ocean floor. Prevailing winds from the northeast at 20-35 m.p.h. and computer trajectories provided by the NOAA Scientific Support Coordinator indicated that the oil should drift southwest and out to sea with no beach impact. Contrary to these predictions, very strong northerly currents pushed the slick, particularly the subsurface oil, towards Oahu and impacted every beach from Hanauma Bay to Waimea Beach on the north shore of Oahu, including Bellows AFB, Kailua and Kaneohe Beaches. As a result of tracking difficulties, oil impact locations could only be determined by personnel walking the beaches. Cleanup operations were tedious and labor intensive using shovels, rakes and sorbents. For example, globules of oil found underneath the sand on Makapuu Beach had to be removed by sifting sand through window screens. Lava rock shorelines in these areas had to be hand cleaned with sorbent "snares" due to their porous nature. Approximately 100 tons of oil-coated debris was transported to Kapaa Landfill near Kailua for disposal. Offshore containment and removal of surface oil using booms was not feasible due to high seas and winds. Dispersants were considered, but never used because much of the oil was migrating beneath the surface of the water, and aircraft capable of applying dispersant were not available. VHF-FM radio communications were poor on the windward side of Oahu due to "shielding" by the mountainous terrain. Portable cellular telephones were distributed to On-Scene Coordinator (OSC) forces to correct this problem and greatly improved the communications and coordination between responsible federal, state and local agency representatives. Although the impact of the oil on wildlife was small (15 birds oiled, 4 birds and a small number of crustaceans and fish dead), media interest was understandably high.

M/V Exxon Houston ('89)

On 2 March 1989 the M/V EXXON HOUSTON ran aground off Barbers Point, Oahu. The vessel was off-loading 490,000 barrels of Alaskan crude oil to Hawaiian Independent Refinery through an offshore single point

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mooring (SPM) when the ship broke free in heavy weather. Most of the transfer had been completed leaving 80,000 barrels of crude oil still on board. The vessel ran aground as it tried to maneuver to deeper water, breaching its double bottom bunker tank located below the engine room, and its port bunker tank. Approximately 16,800 gallons of crude oil was lost from the damaged SPM hose and 8,400 gallons lost from the port bunker tank. An eight day response effort followed in which local RRT and LRT members were activated. The Pacific Area Strike Team (PST) was requested to provide personnel to assist, along with an Air Deliverable Anti-Pollution Transfer System (ADAPTS) and one Open Water Oil Containment and Recovery System (OWOCRS). DOD resources were heavily depended upon during this response. Submersible pump systems were requested from and provided by the Navy Supervisor of Salvage; U.S. Marine Corps heavy lift helicopters from Kaneohe Marine Corps Air Station were used to transport the pumps to the EXXON HOUSTON; and U.S. Navy salvage vessels assisted in successfully re-floating the vessel. Approval for the use of dispersants was quickly requested and obtained in the event that the vessel should founder and discharge its remaining cargo. EXXON Corporation contracted for two dispersant applying planes and had them delivered from the mainland to Oahu where they remained on standby in the event of a vessel breakup. An effective media relations room was established at MSO Honolulu to handle a high volume of press inquiries. Further assistance was received from public affairs offices from the Coast Guard's Fourteenth District, MLC Pacific Area and Headquarters' Public Information Assist Team (PIAT). Coast Guard reservists who joined the effort voluntarily provided additional manpower. Oil impact was primarily limited to Germaines Luau Beach and Campbell Industrial Park.

EXXON Corp. contracted Pacific Environmental Corp. for beach cleanup of these areas. Impact on wildlife was negligible and no bird or fish kills were reported. As a result of lessons learned, a 600 ft Strike Team OWOCRS boom is now pre-staged at CG Base Sand Island to provide for a limited offshore oil-skimming recovery capability. This incident underscored the lack of an open water response capability on the islands, either by mechanical means or by the application of the limited amounts of dispersants stockpiled on the islands.

T/V Star Connecticut ('90)

On November 6th, 1990, the T/V STAR CONNECTICUT grounded approximately 1 NM from Barbers Point Light. The vessel was loaded with, 250,604 barrels of various refined products. Initial radio communications indicated that the vessel was taking on water in its aft pump and engine rooms. Clean Islands Council (CIC) and Pacific Environmental Company (PENCO) were notified and immediately began

mobilizing equipment. The Federal On-Scene Coordinator (FOSC) made a request, (via the DOD representative to the RRT) to Commander In Chief, Pacific Fleet (CINCPACFLT), Pearl Harbor Naval Base and Combat Support Squadron Five (COMSUPPRON), for tug and salvage assistance. A request was also made to the Coast Guard Pacific Strike Team, NSF, for an Air Deliverable Anti-Pollution Transfer System, and the necessary support personnel for the Open Water Oil Recovery and Containment System. The USS SAFEGUARD and the M/V CLEAN ISLANDS arrived on-scene where they joined several commercial tugs and Coast Guard vessels. De-watering pumps from the U.S. Navy were placed on board the T/V STAR CONNECTICUT by US Marine Corp and Army heavy lift helicopters. The vessel was de-watered and floated free with the assistance of two commercial tugs approximately eighteen hours after she had grounded. No oil had been discharged from any of the vessels' tanks. A major problem during the response was VHF Communications. The area near Barbers Point is a "dead area" for VHF communications with the MSO. The major reason for success was the assistance of the DOD.

Hazard Assessment

Assessments of daily risks for the Honolulu port area resulted in the development of the maximum most probable scenario. The scenario would involve offshore bunkering operations in which mechanical failure of transfer equipment causes a discharge of a quantity of product under pressure.

In addition, the aging pipeline infrastructure in Hawaii has the potential of causing a medium discharge. Because pipeline spills are not readily noticeable and often occur in remote areas or in areas that cannot be readily monitored -- under piers, under ground -- the amount of oil released is much greater per incident. While also a major threat, the volume of discharge would not exceed the medium discharge thresholds.

Minor/Average Most Probable Discharges

A minor discharge is defined as a spill less-than 10,000 gallons of oil in the coastal zone or, a spill less-than 1,000 gallons in the inland zone.

Historical Spill Considerations

A statistical analysis was done using Coast Guard Marine Safety Information System (MSIS) data, which showed that the average spill was approximately 200.72 gallons. However, this figure is considered to be inflated due to ten spills, each over 10,000 gallons, occurring between November, 1985 and September, 1992. The actual daily working average is between 25 to 100 gallons. Such spills are handled routinely by MSO personnel and do not require outside involvement.

Hazard Assessment

The majority of discharges in the MSO Honolulu zone occur in the Honolulu Harbor, marinas, and anchorage areas. They are caused mostly by bilge pumping and tank overflows. The products most commonly discharged are waste oil and diesel. The discharges occur in industrial areas and pose a low threat to sensitive areas. The bilge pumpings are generally very small amounts and occur mostly during the rainy season. The tanks over flows are the larger, and occur during all times of the year.

There are many areas in which bunkering operations could possibly lead to a discharge. Due to the large number of transfer operations taking place, the greatest probability of a discharge occurs in the following locations; Honolulu Harbor, Kewalo Basin, Ala Wai Yacht Harbor.

Future Considerations

MSO Honolulu incorporates an aggressive inspections program to prevent oil spills from occurring. Facilities and vessels are inspected on a regular schedule to identify problems. Follow-ups are conducted to ensure compliance. The Hawaiian Area Committee meets on a regular basis to discuss oil contingency planning and to update the Hawaiian Area Contingency Plan. MSO is further reviewing information regarding pipeline spills. The Hawaii Operational Safety Team (HOST) has formed a committee to investigate this matter.

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